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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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09/696,220

10/26/2000

Masafumi Kokura

925-165

4305

23117

7590

11/15/2004

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EXAMINER

AUGHENBAUGH, WALTER

ART UNIT

PAPER NUMBER

1772

DATE MAILED: 11/15/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/696,220

Applicant(s)

KOKURA ET AL.

Examiner

Walter B Aughenbaugh

Art Unit

1772

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 12 August 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-5, 7-11 and 15-17 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-5, 7-11 and 15-17 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Acknowledgement of Applicant's Amendments***

1. The amendments made in claim 11 in the Amendment filed August 12, 2004 (Amdt. E) have been received and considered by Examiner.
2. Claim 15 is incorrectly identified as "(Currently amended)" in Amdt. E. There are no amendments in claim 15 in Amdt. E.

### ***WITHDRAWN REJECTIONS***

3. The 35 U.S.C. 112 rejection of claim 11 made of record in paragraph 10 of Paper 17 has been withdrawn due to Applicant's amendments in claim 11 in Amdt. E.

### ***REPEATED REJECTIONS***

4. The 35 U.S.C. 103 rejection of claims 1, 2, 4, 5, 7, 9, 11 and 15-17 made of record in paragraph 11 of Paper 17 has been repeated for the reasons previously made of record in paragraph 11 of Paper 17.
5. The 35 U.S.C. 103 rejection of claims 3, 8 and 10 made of record in paragraph 12 of Paper 17 has been repeated for the reasons previously made of record in paragraph 12 of Paper 17.

### ***ANSWER TO APPLICANT'S ARGUMENTS***

6. Applicant's arguments regarding the 35 U.S.C. 103 rejection of claim 1 presented on pages 8-9 of Amdt. E have been fully considered but are not persuasive.

Applicant argues that Lee does not teach molybdenum nitride (MoN) as a material for the barrier layer 49, but MoN clearly falls within the scope of the teachings of Lee: Lee states "As a material for barrier layer 49, a metal different than that of gate electrode 45, an oxide, a nitride,

etc. may be used" (col. 7, lines 21-24), and Mo is among the list of suitable metals taught by Lee (col. 7, lines 24-30). Lee further teaches that "a metal compound thereof such as TiN may be used for forming the barrier layer 49" (col. 7, lines 30-32); the word "thereof" in this statement refers to the aforementioned list of suitable metals taught by Lee which includes Mo, and therefore, Lee teaches MoN as a material for barrier layer 49.

Applicant argues that there is "no reason in the art of record which would have led one of ordinary skill in the art to have provided a Mo layer below the pixel electrode of Mitsui as alleged in the Office Action", but the reason, as stated in paragraph 11 of Paper 17, is "to prevent anodic oxidation on the pixel electrode, and to consequently avoid thinning of the electrode". Applicant argues that since Lee teaches that the barrier layer 49 prevents anodic oxidation of the underlying gate electrode, and not the pixel electrode, there is no reason why one of ordinary skill in the art would have provided an Mo layer below the pixel electrode of Mitsui, but regardless of whether an electrode is a gate electrode or a pixel electrode, both of these electrode types are susceptible to anodic oxidation (note that aluminum is taught by Mitsui et al. as a suitable material for the pixel electrodes, col. 9, lines 65-68 and aluminum is taught by Lee as a suitable material for the gate electrode, col. 5, lines 47-52), so one of ordinary skill in the art would have recognized to have used the MoN layer of Lee to prevent anodic oxidation on either type of electrode of Mitsui et al. Applicant argues that "there can be no anodic oxidation problem with the pixel electrode in Mitsui due to the presence of the organic insulation film 42 below the pixel electrode", but the organic insulation film 42 is not below the pixel electrode 38 of Mitsui et al. at contact hole 43 where pixel electrode 38 is in contact with drain electrode 37 (see Fig. 5).

Applicant argues that “if one of ordinary skill in the art were to use Lee’s Mo layer 49 in Mitsui, one would have located it in a position as taught by Lee (i.e. directly over and contacting the gate electrode)”, but as stated above, both of the gate and pixel electrode types are susceptible to anodic oxidation (note that aluminum is taught by Mitsui et al. as a suitable material for the pixel electrodes, col. 9, lines 65-68 and aluminum is taught by Lee as a suitable material for the gate electrode, col. 5, lines 47-52), so one of ordinary skill in the art would have recognized to have used the MoN layer of Lee to prevent anodic oxidation on either type of electrode of Mitsui et al.

7. Applicant’s arguments regarding the 35 U.S.C. 103 rejection of claim 7 presented on page 10 of Amdt. E have been fully considered but are not persuasive. Applicant recites a portion of the claim and states that the “cited art fails to disclose or suggest these aspects of claim 7”, but Applicant does not provide an explanation for why this is the case. The proposed combination of Mitsui et al. and Lee teaches the LCD claimed in claim 7 for the reasons provided in paragraph 11 of Paper 17.

8. Applicant’s arguments regarding the 35 U.S.C. 103 rejection of claim 11 presented on page 10 of Amdt. E have been fully considered but are not persuasive. Applicant recites a portion of the claim and states that the “cited art fails to disclose or suggest these aspects of claim 11”, but Applicant does not provide an explanation for why this is the case. The proposed combination of Mitsui et al. and Lee teaches the LCD claimed in claim 11 for the reasons provided in paragraph 11 of Paper 17.

***Conclusion***

9. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Walter B. Aughenbaugh whose telephone number is 571-272-1488. The examiner can normally be reached on Monday-Thursday from 9:00am to 6:00pm and on alternate Fridays from 9:00am to 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Harold Pyon, can be reached on 571-272-1498. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR

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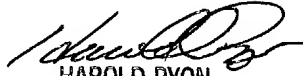
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system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Walter B. Aughenbaugh

11/05/04

WBA

  
HAROLD PYON  
SUPERVISORY PATENT EXAMINER  
1772

11/12/04